



FIG. 1A  
(Prior Art)

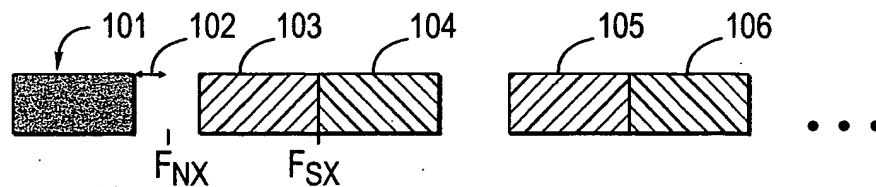


FIG. 1B  
(Prior Art)

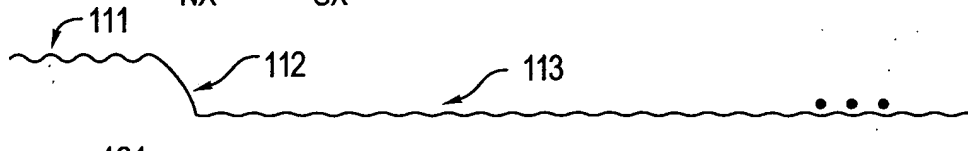


FIG. 1C  
(Prior Art)

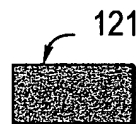


FIG. 2A  
(Prior Art)

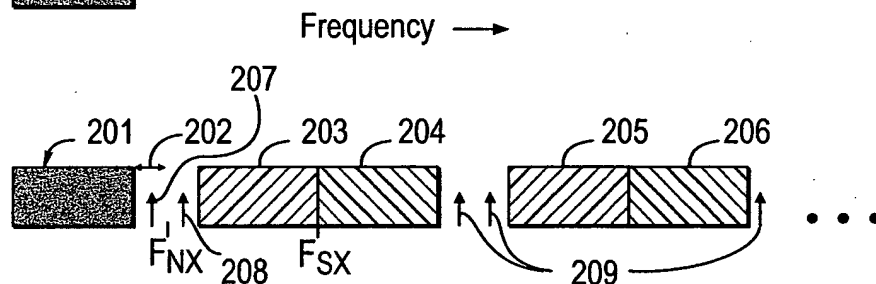


FIG. 2B  
(Prior Art)



FIG. 2C  
(Prior Art)



FIG. 2D  
(Prior Art)

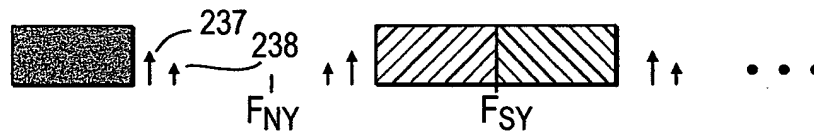


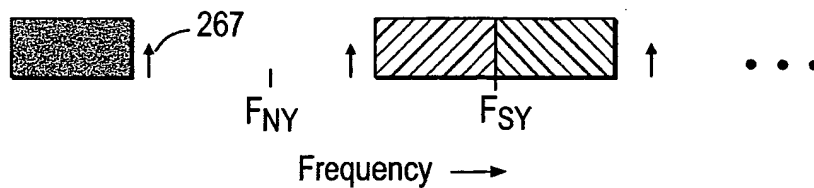
FIG. 2E  
(Prior Art)

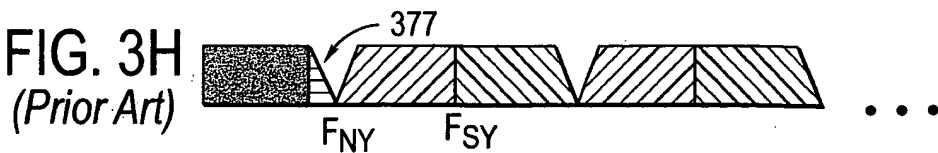
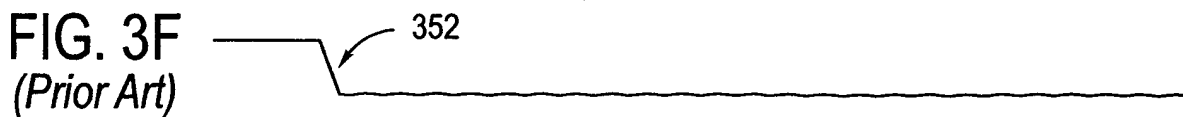
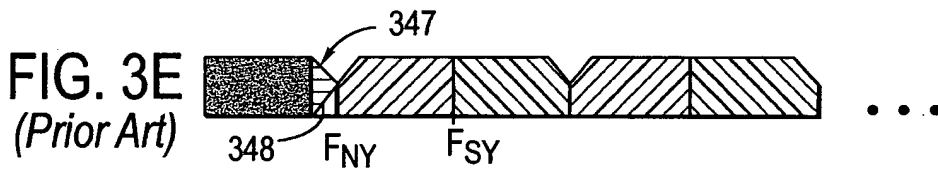
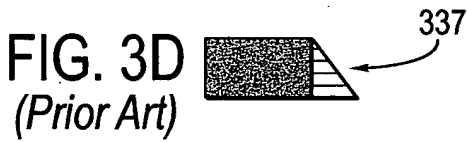
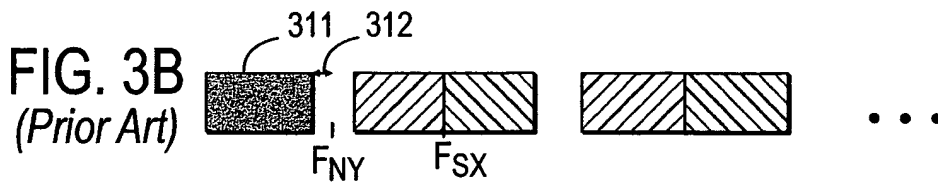
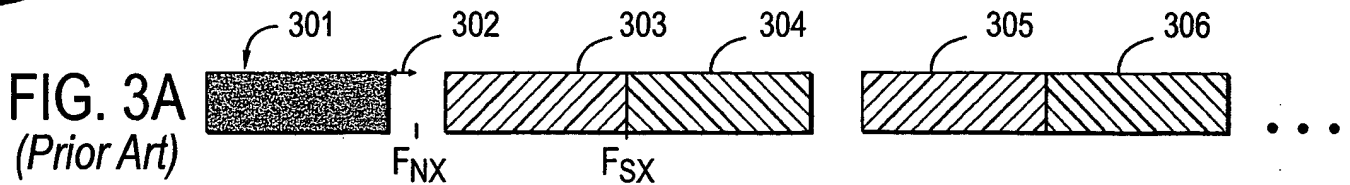


FIG. 2F  
(Prior Art)



FIG. 2G  
(Prior Art)





Frequency →



FIG. 4A  
(Prior Art)

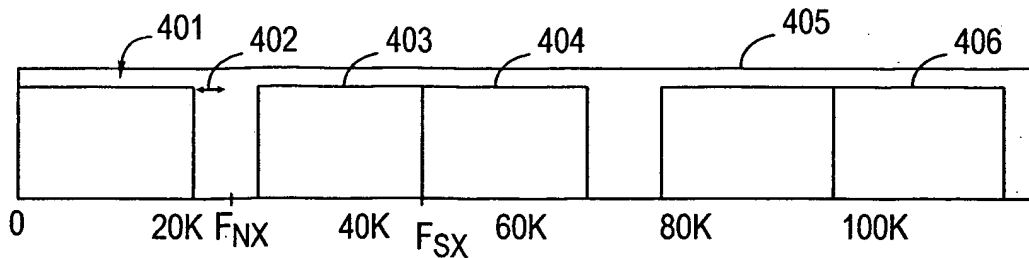


FIG. 4B  
(Prior Art)

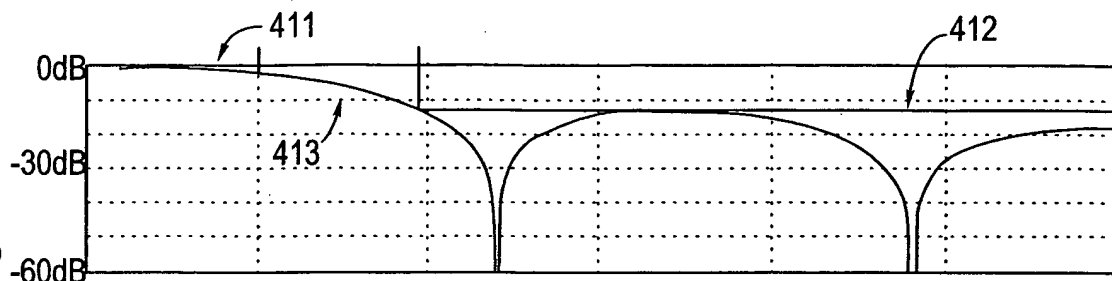


FIG. 4C  
(Prior Art)

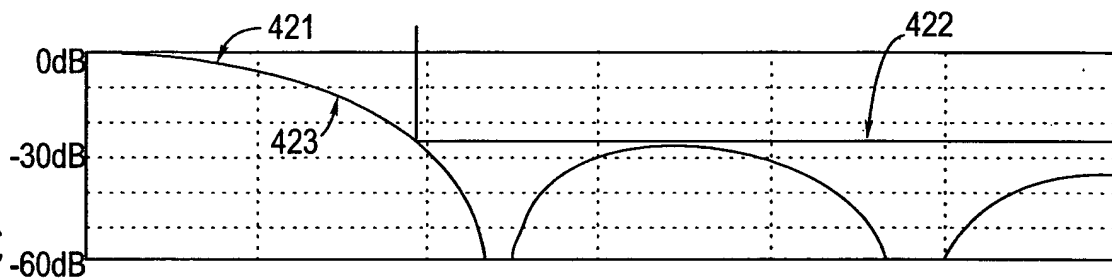


FIG. 4D  
(Prior Art)

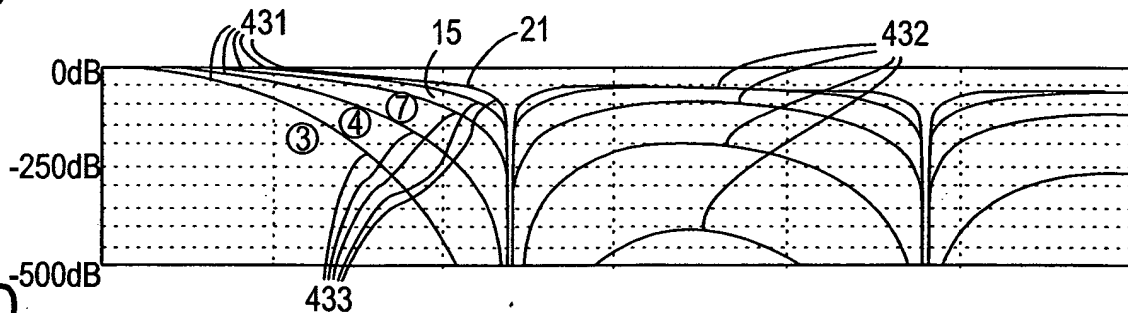
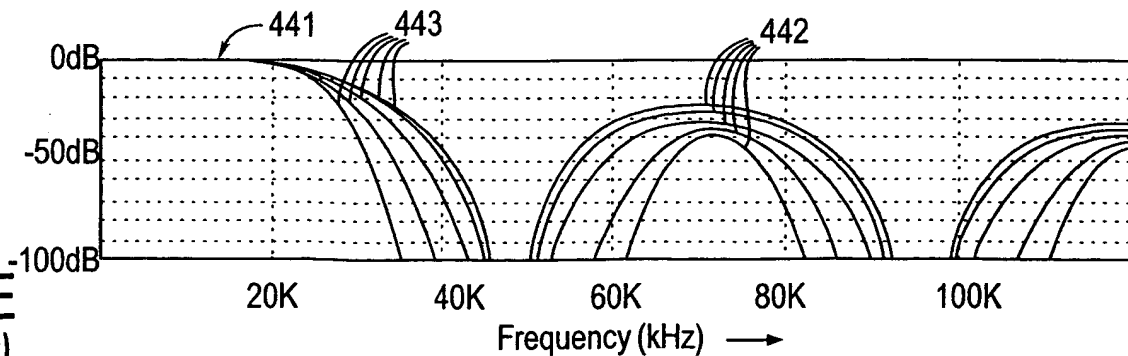


FIG. 4E  
(Prior Art)



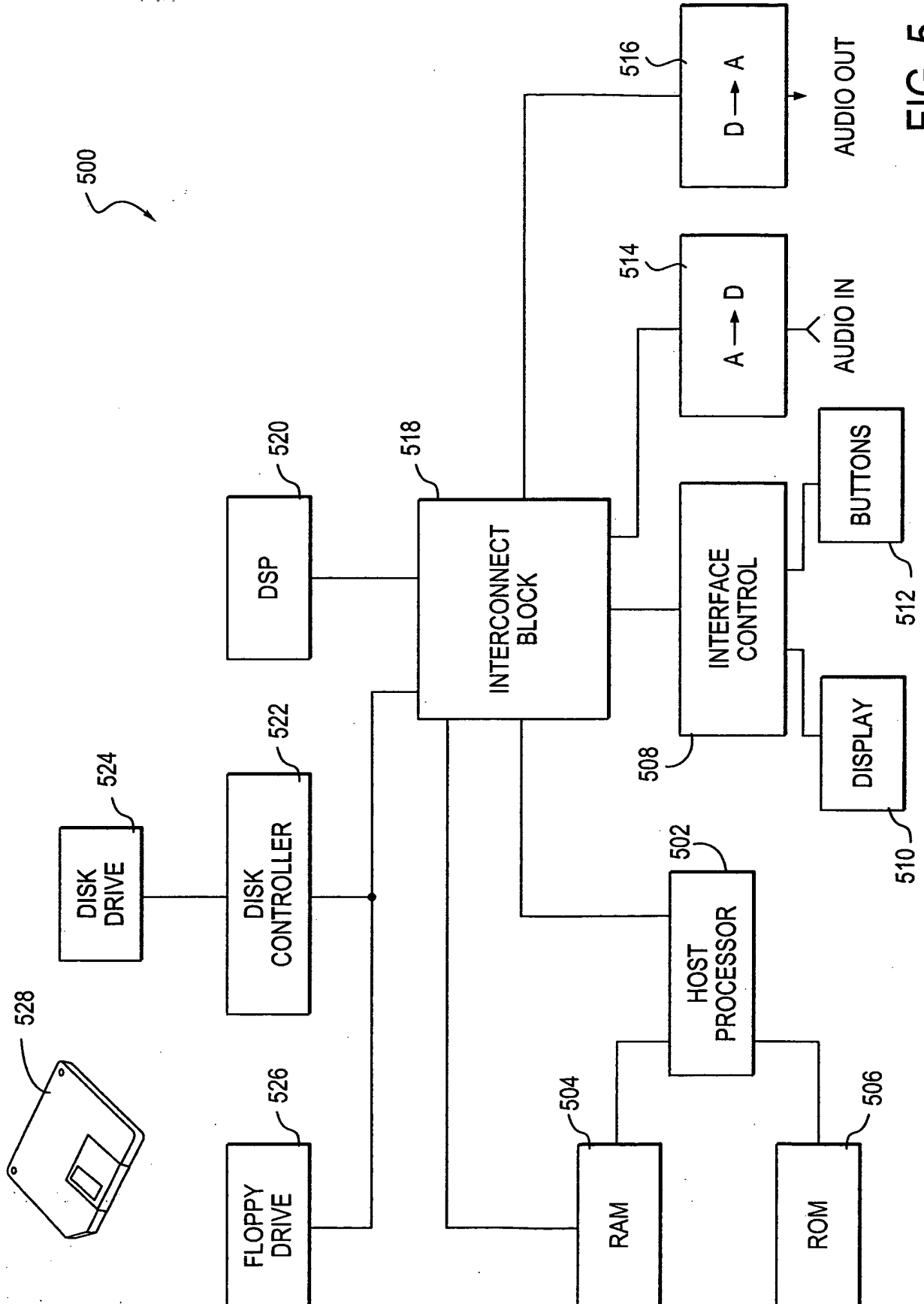


FIG. 5



FIG. 6

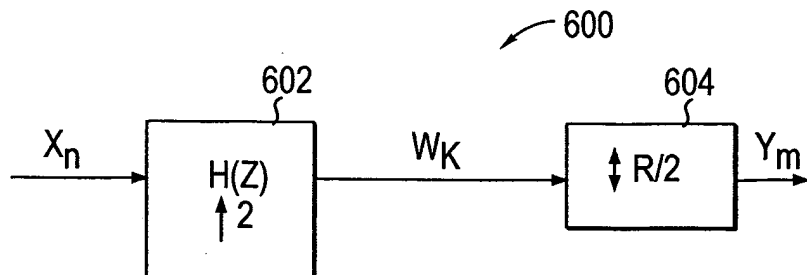
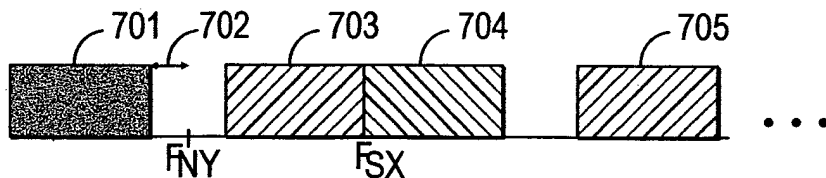


FIG. 7A  $X_r$



upsampling filter  
FIG. 7B

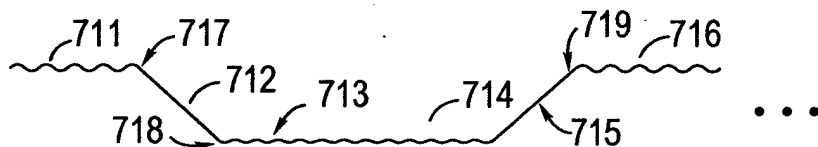
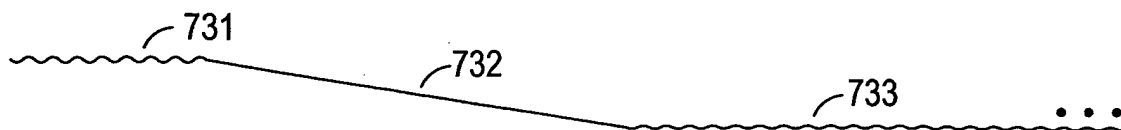


FIG. 7C  $Y_k$



interpolator  
FIG. 7D



interpolation result  
FIG. 7E



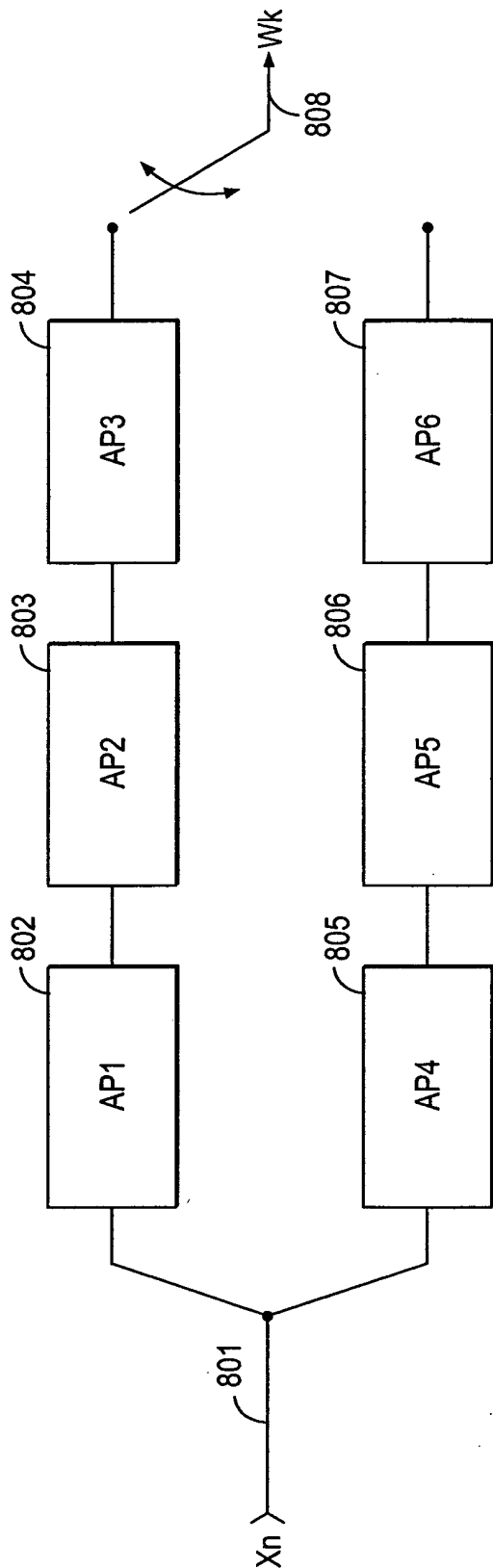


FIG. 8A

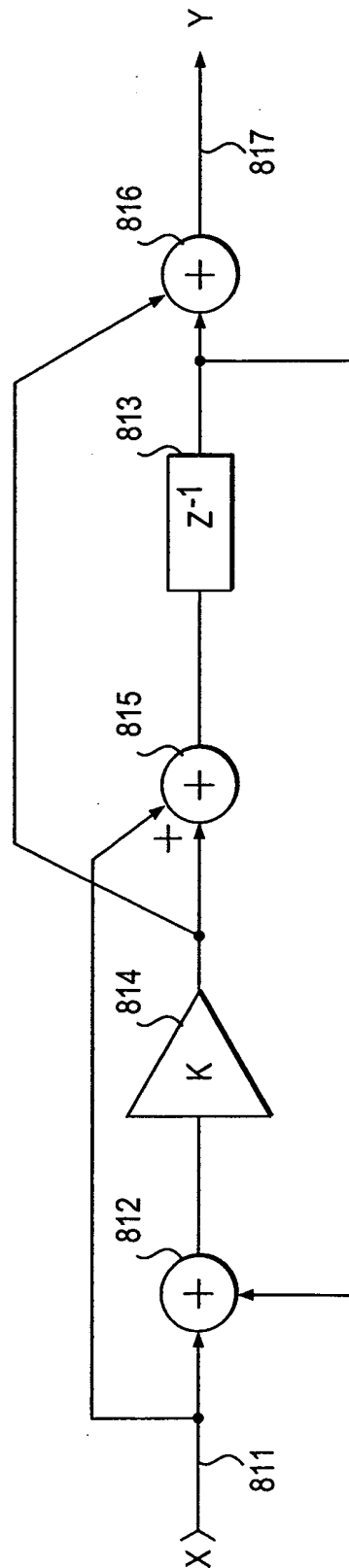


FIG. 8B

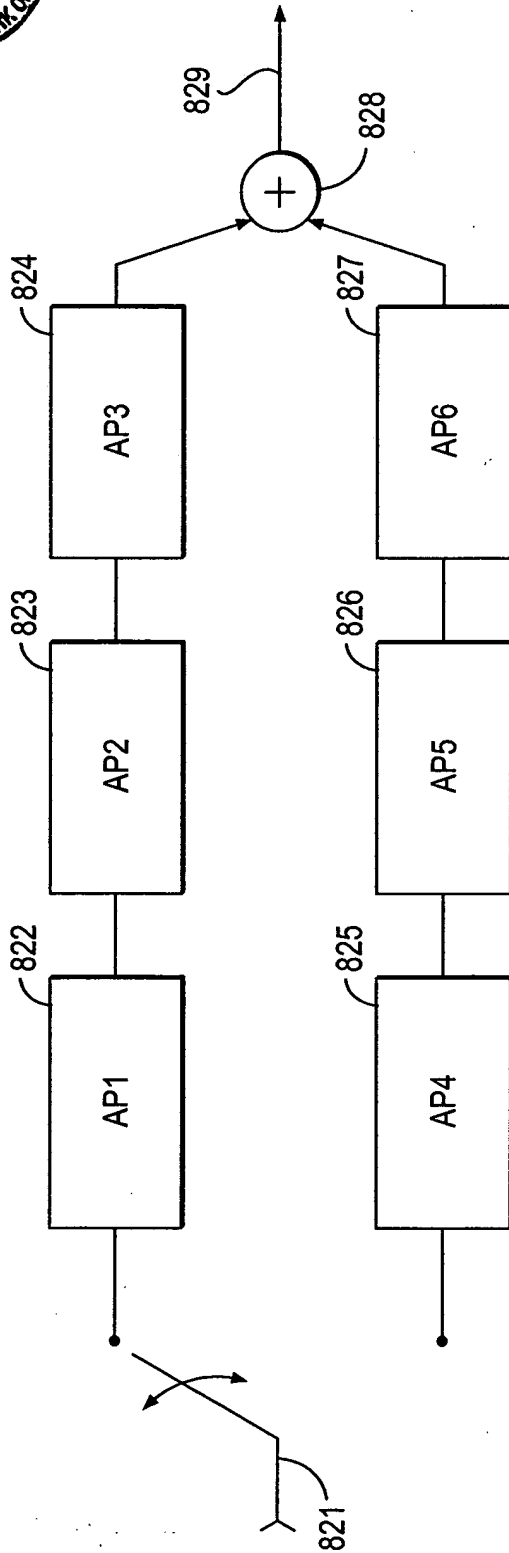


FIG. 8C

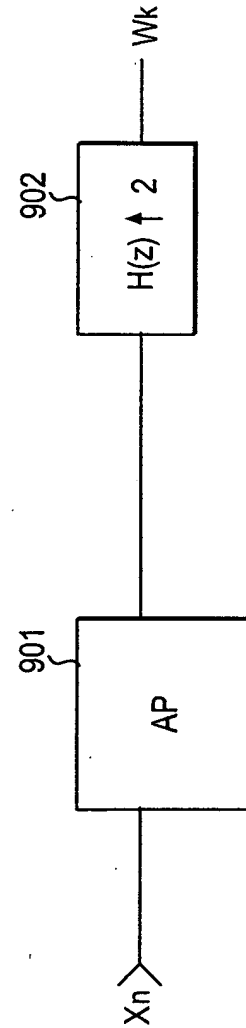


FIG. 9

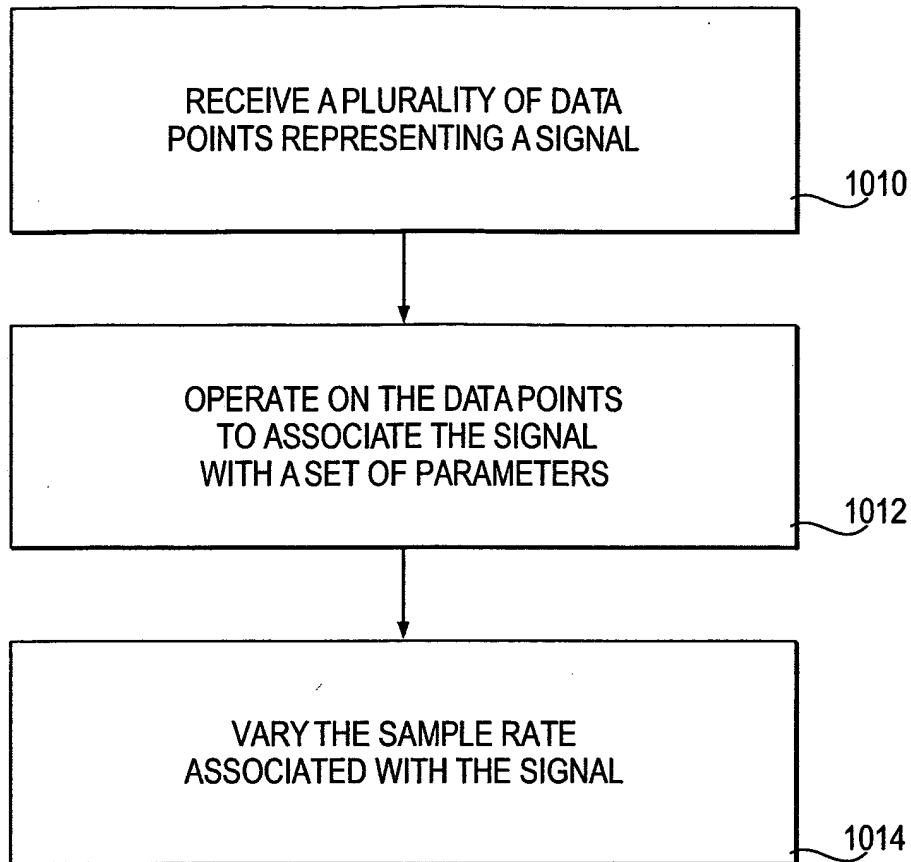


FIG. 10

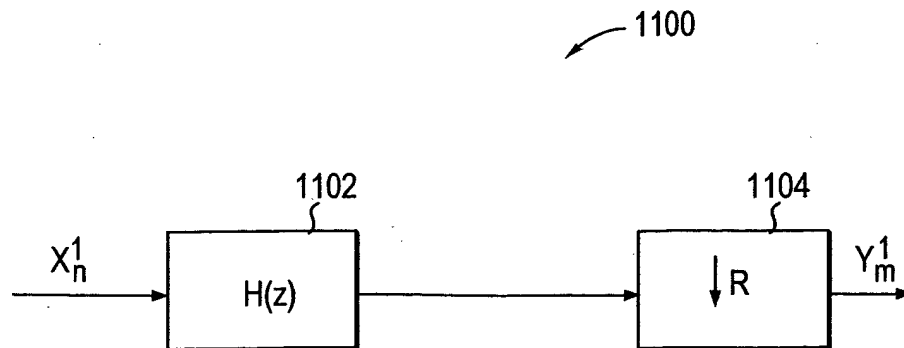
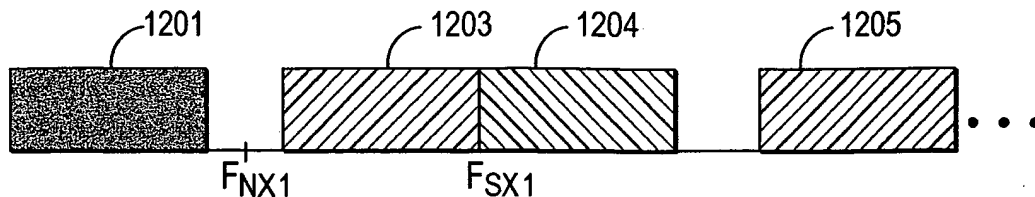


FIG. 11

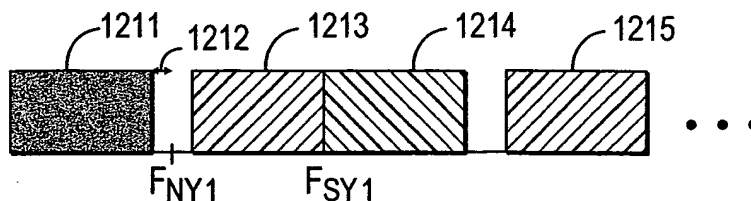




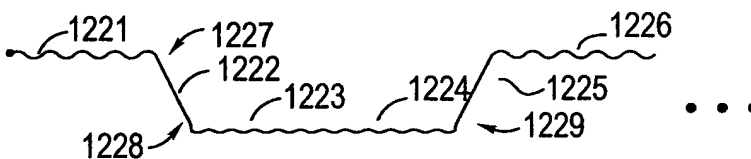
$X_n^1$   
 FIG. 12A



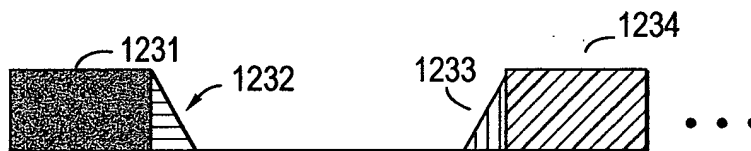
$Y_m^1$  spectrum  
 FIG. 12B



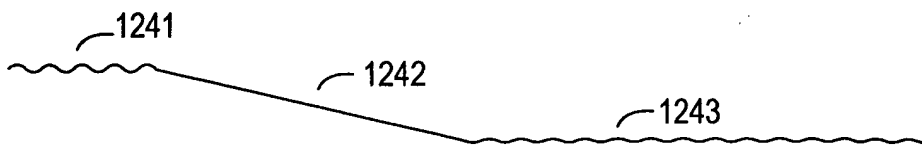
half-band filter  
 FIG. 12C



intermediate  
 signal  
 FIG. 12D



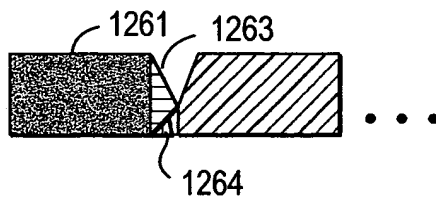
interpolator  
 FIG. 12E



interpolation  
 result  
 FIG. 12F



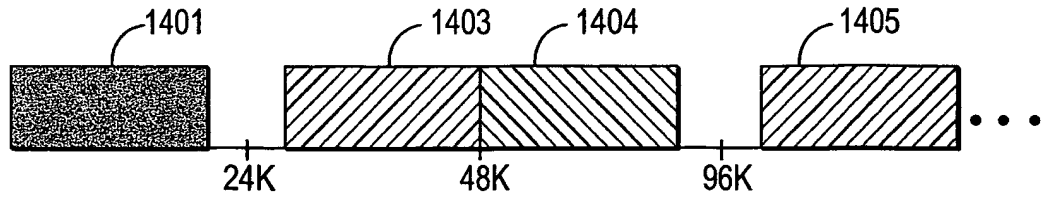
$Y_m^1$   
 FIG. 12G





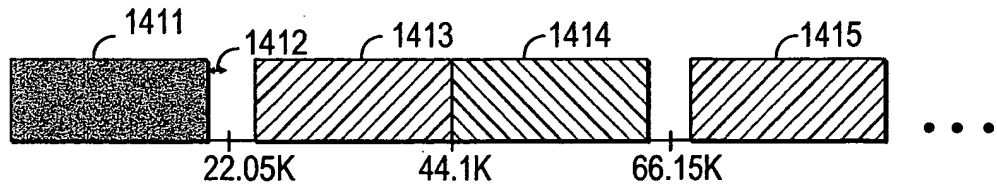
48 kHz  
input spectrum

FIG. 14A



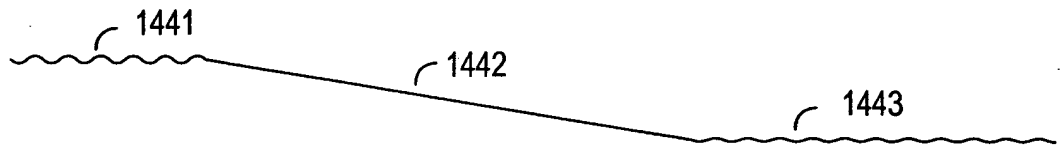
44.1 kHz  
spectrum

FIG. 14B



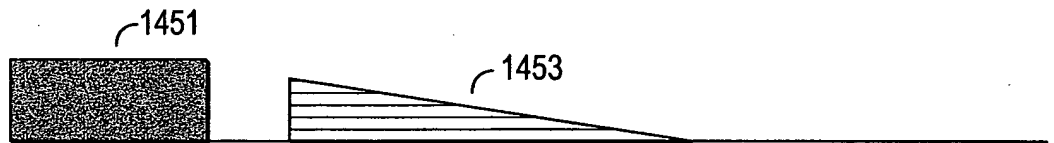
interpolator  
filter

FIG. 14C



intermediate  
signal

FIG. 14D



half-band  
decimating filter

FIG. 14E



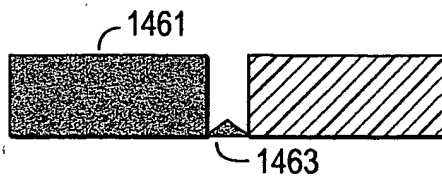
half-band filtered  
prior to decimation

FIG. 14F



decimated  
Output Signal

FIG. 14G



Frequency →

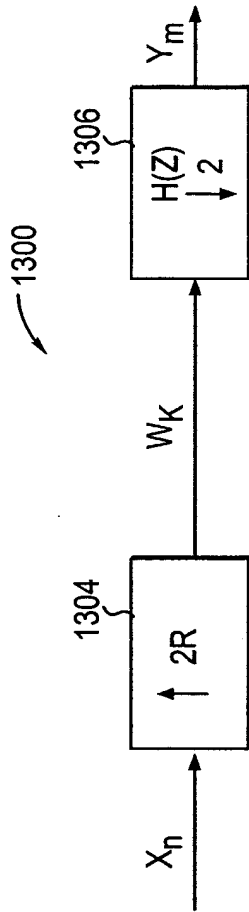
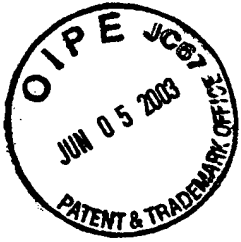


FIG. 13

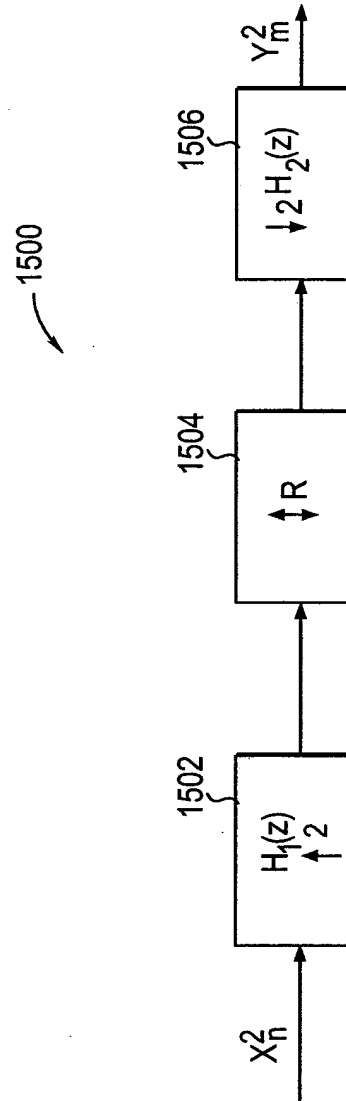
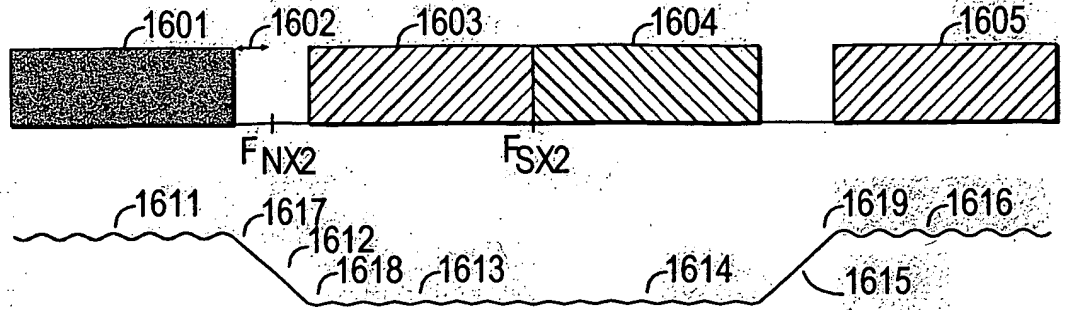


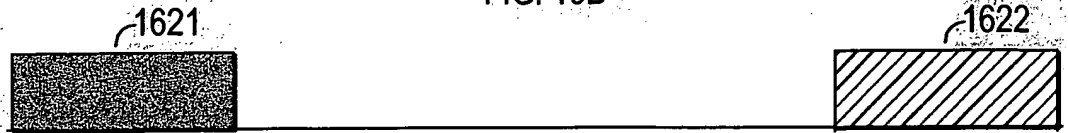
FIG. 15



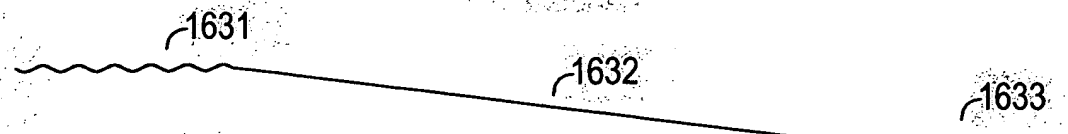
$x_n^2$   
FIG. 16A  
half-band  
upsampling filter  
FIG. 16B



1st Intermediate  
signal  
FIG. 16C



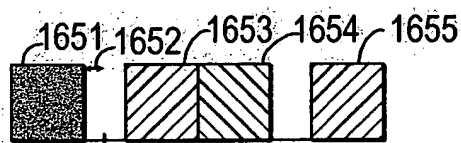
Interpolator filter  
FIG. 16D



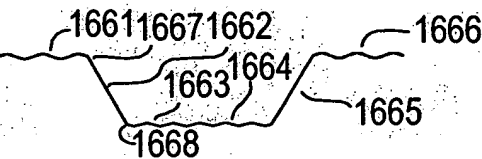
Interpolator filter  
results  
FIG. 16E



output signal  
spectrum  
allocation  
FIG. 16F



Half-band  
decimating filter  
FIG. 16G



Half-band filter  
results: prior to  
decimation  
FIG. 16H



Decimated  
output signal  
FIG. 16I

